



NOvA

Ash River Site

Bill Miller
U of M

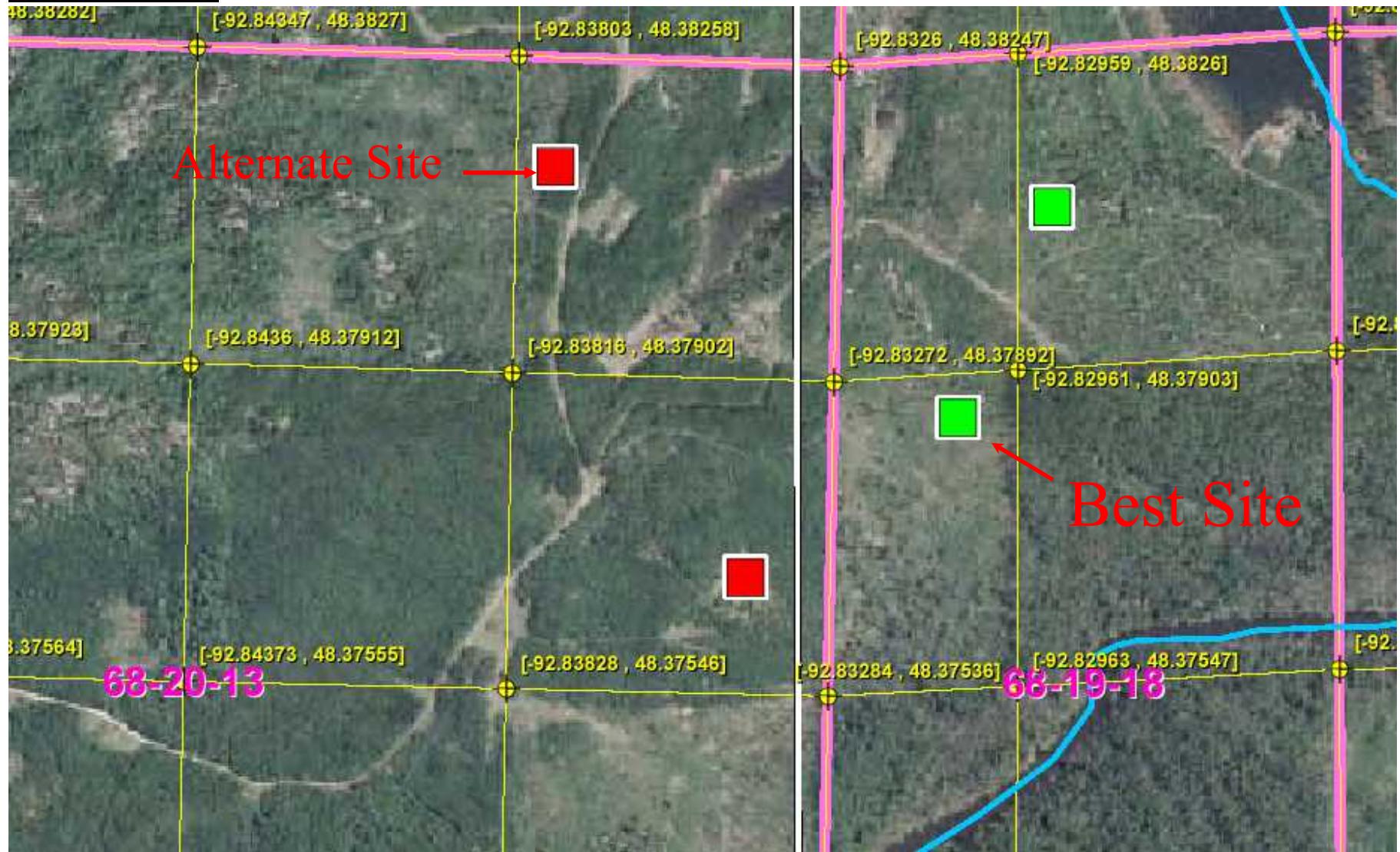


- Best Site Location
- Current Access issues
- How to get site approved?
- Backup Site



Best Site Location

-92.83061 , 48.3785





Site Advantages

- High dry ground-no ground water or wet land issues
- Solid stable ledge rock close to the surface
- Reasonable distance from Ash River
- Accessible by road
- Property owned by state, making it easier to purchase or trade for (DNR would prefer a land swap)
- Not visible from Voyageurs National Park
- No obvious permitting issues/not likely to provoke litigation-Burial mounds, historical or cultural artifacts, old growth forests, endangered or threatened species



More Site Advantages

- Longest possible beam line in United States (11.8 km off-axis and 810.5 km from Fermilab)
- Reasonable distance from power and telecommunications (see last slide)
- Nice View (see next slide)
- SHOULD ALSO DEFINE A BACKUP SITE FOR SCOPING EAW, possibly not on Ash River Trail maybe Orr-Buyck Road? More later

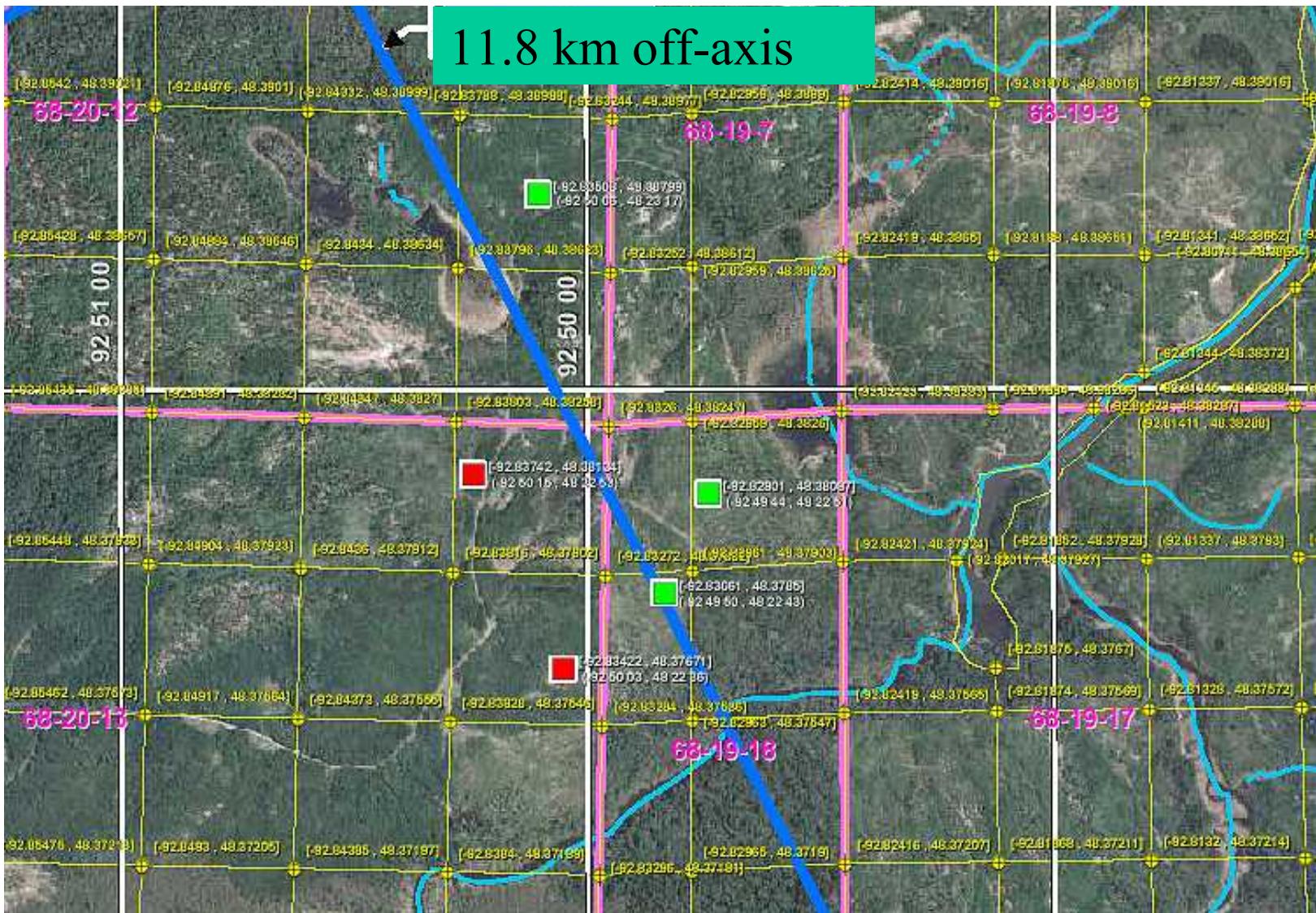


View towards Fermilab





Beam Location





Schedule is tight!

- To be ready to start civil construction if May of 2007 is VERY aggressive if serious work is not started this summer.
- Need to collect enough information (Pre-EAW) to do a Scoping EAW this year
- Need to complete EIS early next summer
- Need to define primary and secondary site



Short term Access Issues

- There is no way to get into the site right now without walking or riding an ATV roughly 2 miles.
- Could make the road at least 4 wheel drive accessible with \$5-10K of road work (gravel and culverts)
- If anyone wants to see the site from the air I can set up a flight for 3 from Tower for \$100.



Phase 1:Pre-EAW \$15-20K

- Cultural Resource Management
 - Check archeological/historical resources
 - State Historic Preservation Office (SHPO)
 - Online research
 - Visual reconnaissance of site for potential archaeological sites
- Land Survey
- Wetlands Inventory-Site and road egress
- Road and power right of way defined based on needs



Scoping EAW:\$75K-\$175K

- Needed to be completed to define what issues need to be defined in EIS
- Vegetation Survey
- Soil samples, soil depth measurements
- Define building plan-Size, type, etc.
- Define land use-Wells, septic, parking, road access



EIS:?

- Scoping EAW will define most of issues
- Public hearings part of the EIS process (usually a minimum of 2 with 1 month advance notice for public comments). EIS on 3 Bays on Vermilion has going on 2 years!
- Cost really depends on findings of Scoping EAW and if there is any opposition to a large construction project in the area.



Power Issues at Ash River

- It looks like there is only 200-400kW available on the main feed coming to Ash River
- Estimate for line upgrade from MinnKota Power is \$300K
- Backup generator and UPS system to handle 1000kW roughly \$900K



North Star Electric Cooperative

Budget Estimate of the Cost to Upgrade Distribution Facilities to Serve

Off Axis NOvA Detector Site (1500 kW)

From the Kabetogema Substation to the Ash River Area

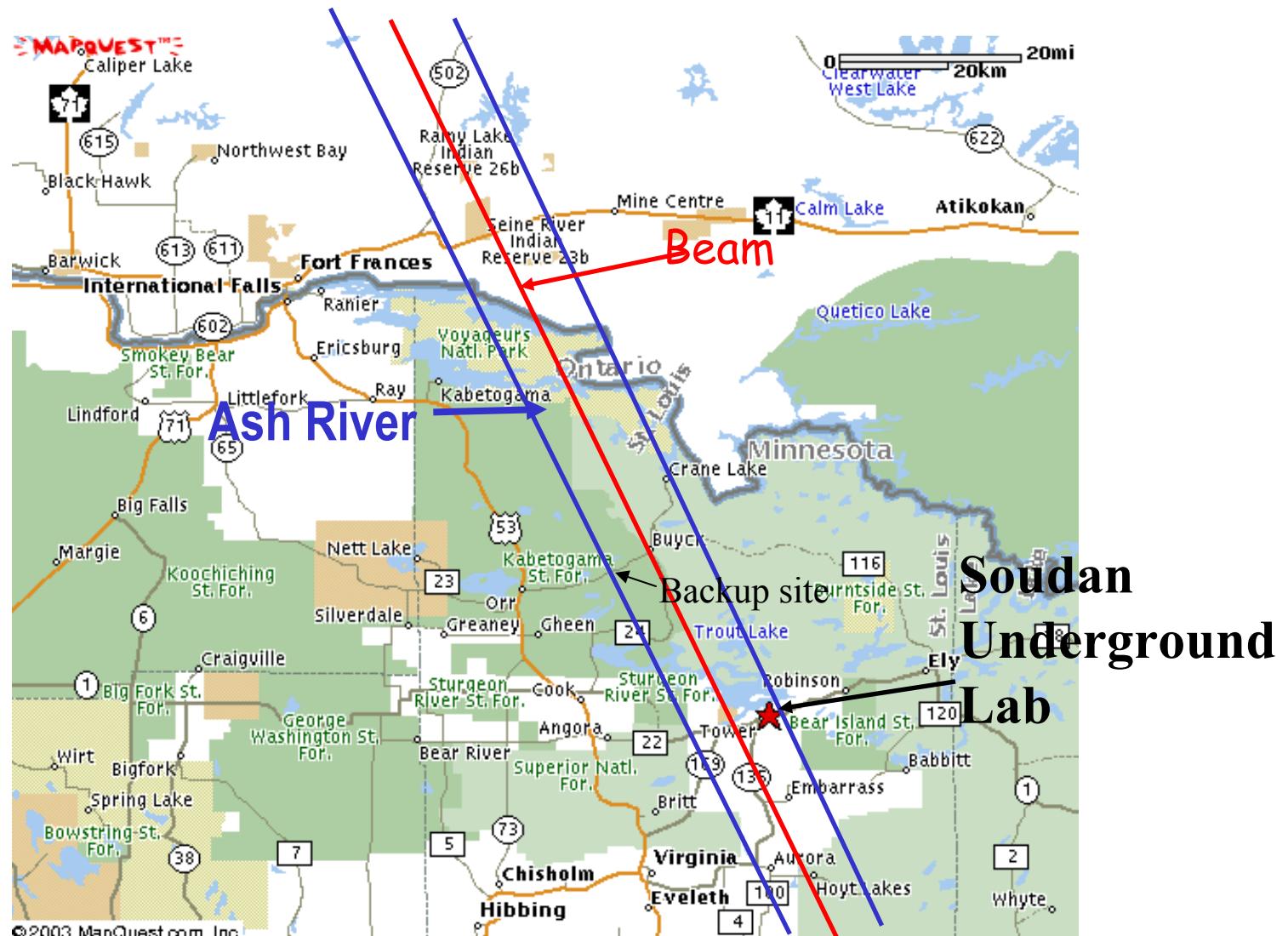
| | Quantity | Unit Cost | Total |
|--|-----------------|------------------|-------------------|
| Step-Down Transformer | 1 | \$ 30,000 | \$ 30,000 |
| Step-Up Transformer | 1 | \$ 30,000 | \$ 30,000 |
| Substation Recloser: Nova-TS | 1 | \$ 20,000 | \$ 20,000 |
| Reinsulate 1/0 ACSR to 25kV | 8.25 | \$ 15,000 | \$ 123,750 |
| 7.2kV to 14.4kV Transformer Changeouts | 19 | \$ 1,000 | \$ 19,000 |
| Half mile of URD for Nova Test Plant | 0.5 | \$ 26,400 | \$ 13,200 |
| Nova Test Plant Service | 1 | \$ 25,000 | \$ 25,000 |
| Total | | | \$ 260,950 |

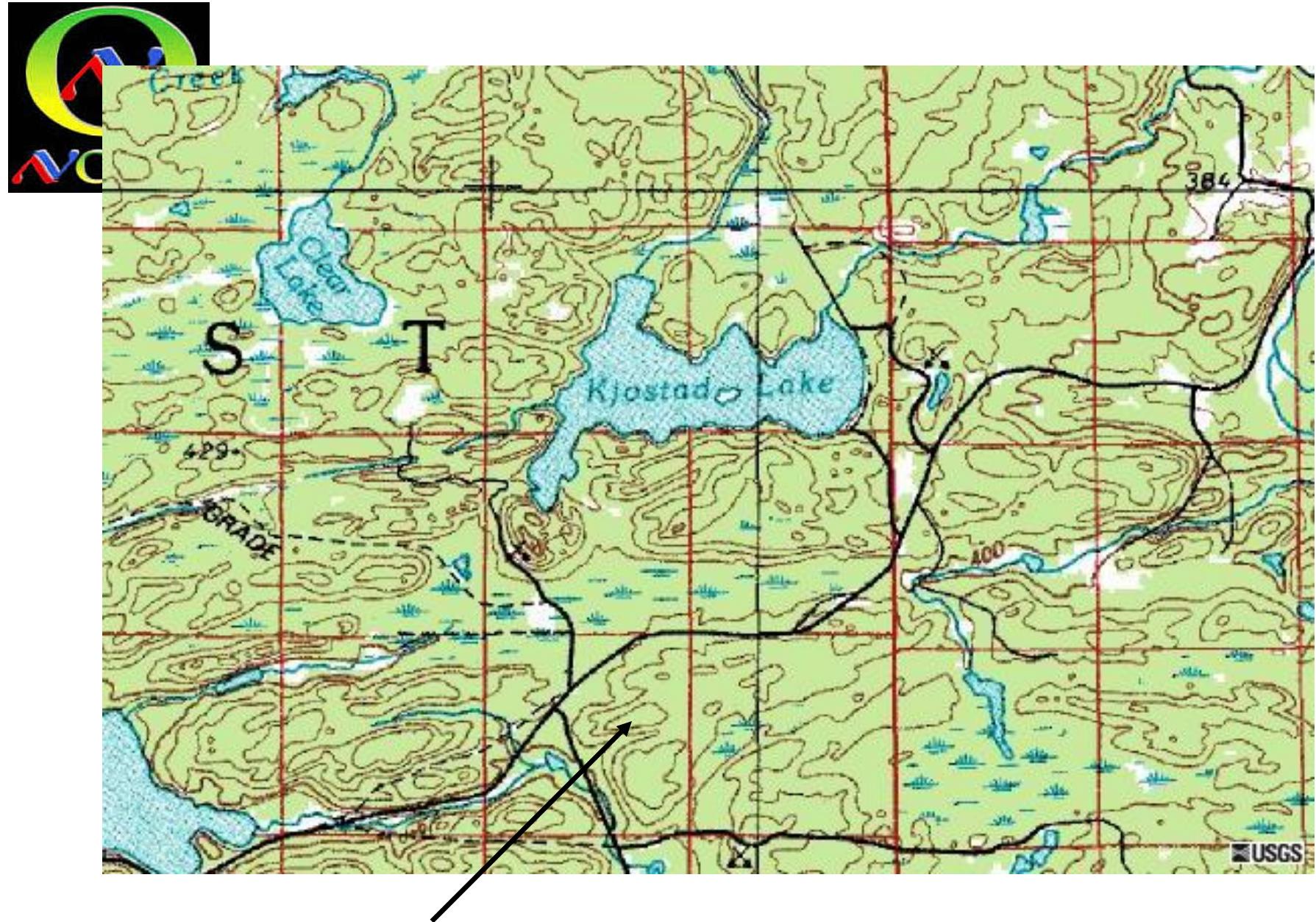
Customer Share of Cost 80%

Total to Customer **\$ 208,760**



Backup NOvA Site





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Potential Backup Site Area

Bill Miller
NOvA-May 05